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Spectrum Reallocation: Challenges and Opportunities

By Thomas Kidd and Mark Rossow - [April-June 2011](#)

"Few technological developments hold as much potential to enhance America's economic competitiveness, create jobs, and improve the quality of our lives as wireless high-speed access to the Internet," wrote President Obama in a memorandum issued June 28, 2010, titled "Unleashing the Wireless Broadband Revolution."

Now, more than ever before, the use of electromagnetic spectrum, aka radio frequencies, is recognized as having significant contributions to the nation's economy. We need only look around at the myriad wireless devices emerging into the market every day. The President wrote: *"America's future competitiveness and global technology leadership depend, in part, upon the availability of additional spectrum."* The presidential memorandum directs the Secretary of Commerce to work with the Federal Communications Commission (FCC) to make 500 megahertz (MHz) of federal and nonfederal spectrum available for wireless broadband use within the next 10 years. The president's directed efforts are intended to make available additional radio frequencies to support and enhance mobile broadband capabilities throughout the United States to spur the economic capabilities of the country.

The memo states: *"This new era in global technology leadership will only happen if there is adequate spectrum available to support the forthcoming myriad of wireless devices, networks, and applications that can drive the new economy."*

E-commerce, distance learning, and a plethora of other wireless capabilities, not to mention cellular telephones, have dramatically modified private, public, and commercial interests and abilities in the United States. Wireless access is critical to commerce, education and security, and other vital capabilities in the United States, which are now affected significantly by spectrum use. The two naval services within the Department of the Navy (DON) are also experiencing a dramatic increase in spectrum use. Spectrum enables a long list of Navy and Marine Corps capabilities, and their naval reliance on and requirements for spectrum increase continually.

The memo states: *"The spectrum must be available to be licensed by the FCC for exclusive use or made available for shared access by commercial and Government users in order to enable licensed or unlicensed wireless broadband technologies to be deployed."*

Recognizing the beneficial effects that spectrum has on the nation's economy, as well as the nation's security, as provided by the Navy and Marine Corps, the DON is supporting the Secretary of Commerce, through ongoing Department of Defense (DoD) efforts, to identify spectrum that may be made available to support the president's direction. The DON Chief Information Officer's efforts in this regard are substantial.

The DON is one of the largest users of radio frequencies within the federal government, and its use of spectrum is extremely diverse. As a result of the DON's robust and various uses for spectrum, the DON CIO's spectrum team will conduct intensive analyses on a number of frequency bands to ensure the DON's existing capabilities are not degraded or eliminated when they are relocated to another frequency band, or when they share the use of a frequency band with nonfederal users.

"Spectrum and the new technologies it enables also are essential to the Federal Government, which relies on spectrum for important activities, such as emergency communications, national security, law enforcement, aviation, maritime, space communications, and numerous other Federal functions," the memo states.

The analyses consider and address complex governance, technical and operational issues, and the results are aggregated to provide decision recommendations to the Secretary of Commerce. However, a decision to reallocate federal spectrum used by the DoD, to nonfederal uses does not solely reside with the Secretary of Commerce.

The National Defense Authorization Act for Fiscal Year 2000 (Title X, Subpart G, Section 1062) requires that the Secretary of Commerce, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff jointly certify that the replacement spectrum band provides comparable technical characteristics to restore essential military capabilities that will be lost when a federal frequency

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band is reallocated for nonfederal use.

"The Secretaries of Defense, the Treasury, Transportation, State, the Interior, Agriculture, Energy, and Homeland Security, the Attorney General, the Administrators of the National Aeronautics and Space Administration (NASA) and the Federal Aviation Administration, the Director of National Intelligence, the Commandant of the United States Coast Guard, and the head of any other executive department or agency that is currently authorized to use spectrum shall participate and cooperate fully," the president wrote.

The requirement, to jointly certify that federal spectrum reallocations will not result in lost or degraded military capabilities, underscores the fact that the nation's security is comprised of its economic and defense postures and capabilities. This is not a surprise within the DON. Throughout the DON's history, the naval services have capitalized on and employed technology advances that were created, whether in part or in whole, by commercial entities for economic purposes. With this in mind, the risk of losing spectrum within the United States, which is intended to energize wireless broadband use, must be viewed as a potential opportunity for yet another introduction of new and enhanced naval spectrum capabilities.

"As the wireless broadband revolution unfolds, innovation can enable efficient and imaginative uses of spectrum to maintain and enhance the Government's capabilities," the president wrote.

The presidential memorandum, Unleashing the Wireless Broadband Revolution, is available at www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution.

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